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EXAMINER

BURCH, MELODY M

ART UNIT

PAPER NUMBER

3683

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/034,574	AKHTAR ET AL.
	Examiner Melody M. Burch	Art Unit 3683

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 27 December 2001.

2a) This action is **FINAL**.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-30 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-30 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 27 December 2001 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.

4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Specification***

1. The abstract of the disclosure is objected to because it includes the improper use of claim language such as "said" in line 2 from the bottom. Correction is required. See MPEP § 608.01(b).

### ***Claim Objections***

2. Claims 6 and 17 are objected to because of the following informalities: The phrase "said a mounting eyelet" in line 2 of claim 6 should be changed to --said mounting eyelet--. Appropriate correction is required.
3. Claims 8 and 18 are objected to because of the following informalities: the phrase "constructed of same said composite material as said main leaf spring" first claimed in lines 2-3 of claim 8 should be changed to --constructed of said composite material--

### ***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
5. Claims 15-17 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re: claims 15 and 29. The phrase "a loading structure" first claimed in the last

line of claim 15 is indefinite. It is unclear to the Examiner whether Applicant intends to refer back to the load plate claimed in claims 12 and 28 which serves as a loading structure or whether Applicant intends to claim a new element. Examiner has interpreted the loading structure to be an element distinct from the load plate. Clarification is required.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 28-30 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 4750718. to Nickel.

Re: claim 28. Nickel shows in figures 1 and 2 a method of achieving a continuous non-linear variable spring deformation rate for a multi-arc leaf spring assembly comprising: providing a main leaf spring 1 constructed of a composite material as disclosed in line 2 of the abstract, the main leaf spring defining a central arc portion having a first radius shown in figure 6 in the area of element 4 and at least one peripheral arc portion shown in the area of the lead line associated with element 1 in figure 1 connected with the central arc portion and having a second radius not equal to the first radius, providing a load plate 2,6, the load plate adjacent the leaf spring, applying a downward force to the main leaf spring to achieve a soft spring rate, and

applying an increased downward force to the main leaf spring wherein the main leaf spring progressively and continuously engages the load plate to achieve a hard spring rate and a smooth transition from the soft spring rate to the hard spring rate.

Re: claim 29. Nickel shows in figure 1 the main leaf spring further including at least one integral mounting end 5 connected with the at least one peripheral arc portion, the at least one mounting end adapted to be connected to a loading structure.

Re: claim 30. Nickel shows in figure 1 the method of separating the main leaf spring from the load plate under empty payload conditions with an intermediary member 12 shown in figure 2.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-5, 7, 12-16, 22-24, and 26 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3685812 to Buchesky et al. in view of US Patent 4750718. to Nickel.

Re: claims 1-3, 13, 14. Buchesky et al. show in figures 1 and 2 a variable rate multi-arc leaf spring assembly comprising: a main leaf spring 3, the main leaf spring defining a central arc portion shown in the area of element P having a first radius R1 and at least one peripheral arc shown to the left of element P having a second radius R2 not

equal to the first radius, wherein the main leaf spring provides a continuous non-linear variable spring deformation rate, but does not disclose the limitation of the leaf spring being constructed of a composite material. Nickel teaches in lines 1-2 of the abstract the use of a main leaf spring being constructed of a composite material, particularly a fiber-reinforced resin. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the material of the leaf spring of Buchesky et al. to have included a composite such as a fiber reinforced resin, as taught by Nickel, in order to provide a leaf spring having improved corrosion resistance and improved adhesive properties.

Re: claims 4, 5, 15, 16, 23, and 24. Buchesky et al. show the limitation wherein the main leaf spring further includes at least one integral mounting end through which element 5 is inserted as shown in figure 1 the end being connected with the at least one peripheral arc portion, the at least one mounting end adapted to be connected to a loading structure 5.

Re: claims 7, 12, and 26. Buchesky et al. show a load plate 9, the load plate adjacent the leaf spring, wherein the load plate continuously engages the leaf spring during a predetermined set of payload conditions to enhance the continuous non-linear variable spring deformation rate.

Re: claim 22. Buchesky et al. show in figures 1 and 2 a variable rate multi-arc leaf spring assembly comprising: a main leaf spring 3, the main leaf spring defining a plurality of arced sections R1,R2,R3 integrated along length of the main leaf spring, at least two of the sections having different spring rates, wherein the main leaf spring

provides a continuous non-linear variable spring deformation rate, but does not disclose the limitation of the leaf spring being constructed of a composite material. Nickel teaches in lines 1-2 of the abstract the use of a main leaf spring being constructed of a composite material, particularly a fiber-reinforced resin. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the material of the leaf spring of Buchesky et al. to have included a composite such as a fiber reinforced resin, as taught by Nickel, in order to provide a leaf spring having improved corrosion resistance and improved adhesive properties.

10. Claims 6, 17, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3685812 to Buchesky et al. in view of US Patent 4750718. to Nickel as applied to claims 5, 16, and 24 above, and further in view of US Patent 3904300 to Hetmann. Buchesky et al. show the mounting eyelet including an insert or bushing 5 for installation, but is silent as to the material of the insert. Hetmann teaches in figure 1 the use of an eyelet 1 having a metallic insert 6. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the insert or bushing 5 of Buchesky et al. to have been metallic, as taught by Hetmann, in order to provide an attachment means with rigidity and high structural integrity provided by a metal material.

11. Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3685812 to Buchesky et al. in view of US Patent 4750718. to Nickel as applied to claims 7 and 12 above, and further in view of US Patent 4801129 to Wells. Wells teaches in figure 1 and in lines 1-2 of the abstract the use of a composite material

leaf spring and in col. 11 lines 2-10 the use of a load plate made of a composite material or reinforced plastic. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the load plate of Buchesky et al. to have been constructed of a composite material similar to the leaf spring, in view of the teachings of Wells, in order to provide a leaf spring assembly having components made of a suitable material to withstand particular environments depending on the leaf spring assembly application.

12. Claims 9, 10, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3685812 to Buchesky et al. in view of US Patent 4750718. to Nickel as applied to claims 7 and 12 above, and further in view of US Patent 4519590 to Wells. (first interpretation)

Re: claims 9 and 19. Wells teaches in figure 2 the use of a load plate 12 defining a uniform cross-sectional area throughout its length. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the load plate of Buchesky et al. to have been constructed with a uniform cross-sectional area throughout its length, as taught by Wells, in order to provide a means of facilitating the manufacture of a leaf spring support means.

Re: claims 10 and 20. Wells teaches in figure 2 the use of an intermediary member 11 spaced between a leaf spring 10 and a load plate 12. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the area between the leaf spring and the load plate of Buchesky et al. to have

included an intermediary member, as taught by Wells, in order to provide a spacer means between the spring and the load plate.

13. Claims 10, 11, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3685812 to Buchesky et al. in view of US Patent 4750718. to Nickel as applied to claims 7 and 12 above, and further in view of US Patent 4519590 to Wells. (second interpretation)

Wells teaches in figure 2 the use of an intermediary member 2 made of urethane as taught in col. 7 lines 39-41 spaced between a leaf spring 10 and a load plate 1. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the area between the leaf spring and the load plate of Buchesky et al. to have included an intermediary member, as taught by Wells, in order to provide a tough spacer means between the spring and the load plate.

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patents: 1538188 to Hopper et al., 5897127 to Hauglin, 3814410 to Fukui et al., 5938221 to Wilson, 3849037 to Downs, 4345749 to Hellwig, and 5367917 to Hishon et al. teach the use of main leaf springs having a central arc portion and at least one peripheral arc portion, 5749591 to Thurm teaches in col. 8 that the radius of curvature of a leaf spring may vary along its length, and 3672656 to Saitoh et al., 4969634 to Bellingham, and H518 to Gentiluomo teach the use of leaf springs deflecting onto an adjacent plate or support.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 703-306-4618. The examiner can normally be reached on Monday-Friday (7:30 AM-4:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on 703-308-3421. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

mmB 11/7/02  
mmb  
November 7, 2002

*M. C. Graham*  
11/7/02

MATTHEW C. GRAHAM  
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GROUP 310